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INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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COUNTRY USSR

REPORT

SUBJECT Model T G-3 Crucible-Type Furnace (complete description of equipment and its operation)

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REFERENCES

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

Model T G-3 crucible-type electric furnace. the following information about the furnace: certification; application; brief description and photograph; schematic diagram of furnace connection to supply; specification; preparation of furnace for operation; operation; storage; delivery volume; guarantee; and a list and index of spare parts. Classification of the document when separated from this report is OFFICIAL USE ONLY.

28 JAN 1959

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МОСГОРСОВНАРХОЗ
УПРАВЛЕНИЕ РАДИОТЕХНИЧЕСКОЙ ПРОМЫШЛЕННОСТИ И ПРИБОРОСТРОЕНИЯ

ГОСУДАРСТВЕННЫЙ ЗАВОД
„ПЛАТИНОПРИБОР“

МОСКВА

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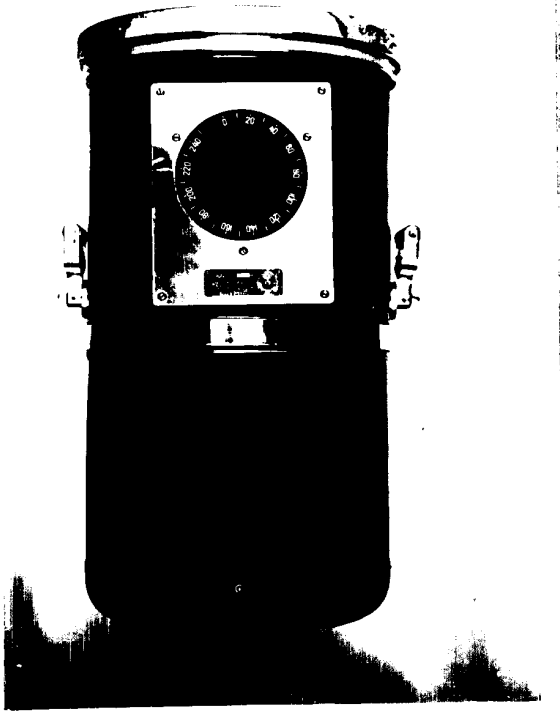

U S S R

MINISTRY OF INSTRUMENT AND AUTOMATIC
CONTROL APPARATUS MAKING INDUSTRY

"PLAYTRONIKA"

MODEL T Г - 3 CRUCIBLE TYPE ELECTRIC FURNACE

C E R T I F I C A T E

OF WORKS CONTROL DEPARTMENT

Serial No. 4

Supply	220 Volts
Consumption	1850 Watts
Maximum working temperature	1200° C.
Dimensions of working room:	
Diameter	72 mm.
Height	175 mm.
Time required to raise temperature up to 1200° C	120 minutes
Uniformity of temperature within the furnace working room	±5° C
Stretch of uniform temperature zone	80 mm.

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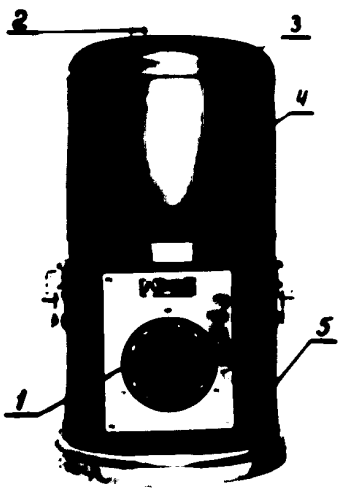
MODEL TT-3 CRUCIBLE TYPE ELECTRIC FURNACE

OPERATION AND MAINTENANCE INSTRUCTIONS

1. APPLICATION

The furnace is designed for calcination of sediments and for thermal analysis of salts.

2. BRIEF DESCRIPTION



Main assemblies of the unit are:

a) furnace assembly;

b) stand assembly.

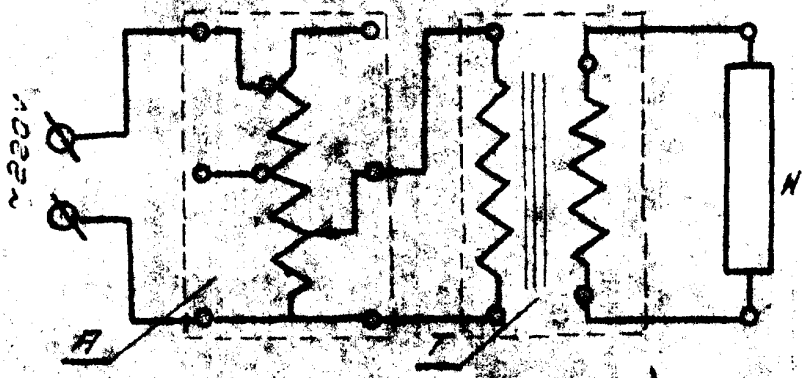
The furnace assembly comprises cylindrical shell 4 and cover 3. Inside the shell, on a foamed-chamotte cushion is secured ceramic tube 7 into which is inserted spiral heating element made of 3H-626 alloy.

Both the cushion and the ceramic tube are inserted in an asbestos cylinder. The space between the asbestos cylinder and the ceramic tube is filled up with foamed chamotte fines, whereas the space between the asbestos cylinder and the shell is filled up with lagging.

The furnace stand assembly comprises a metal housing 5 the upper cover of which mounts a step-down transformer. The type ЛАТР-1 autotransformer is mounted on the housing side wall.

The autotransformer connected into the circuit of the furnace enables to regulate the consumption of energy by the furnace, thus ensuring higher accuracy of temperature control in the furnace working room.

3. SCHEMATIC DIAGRAM OF FURNACE CONNECTION TO SUPPLY



A - Type ЛАТР-1 Autotransformer

T - Step-down transformer, 220/22 Volts

H - Heater

4. SPECIFICATION

Supply voltage	220 Volts
Consumption	1850 Watts
Maximum voltage at heater terminals	22 Volts
Maximum working temperature	1200°C
Time required to raise temperature up to 1200°C	120 minutes

Temperature uniformity in the furnace working room	± 5°C
Stretch of uniform temperature zone	80 mm.
Dimensions of furnace working room:	
Diameter	72 mm.
Height	175 mm.
Overall dimensions of furnace:	
Height	765 mm.
Diameter	455 mm.
Furnace net weight	93 kg.

5. PREPARATION OF FURNACE FOR OPERATION

a) Unpack the furnace;

b) Examine the furnace outside and inside the working room;

c) In case no damage has been found, ground the furnace shell by connecting the terminal "Ground" to the grounding system of the building;

d) Connect the furnace terminals to the supply mains according to the schematic diagram given in clause 3;

e) The furnace must be dried out at a temperature ranging within 700 and 900° C for 4 or 5 hours before putting it into service.

6. OPERATION

a) Set the type LATP-1 autotransformer handle at position "0";

b) Switch the furnace in;

c) By gradually turning the autotransformer handle in the direction of voltage increase, check the temperature increase inside the furnace working room using the platinum-platinum-rhodium thermocouple;

d) After the required temperature in the working room has been attained the temperature control must be effected by means of the autotransformer.

e) With the purpose of saving the type ЛАТР-1 autotransformer from damage it is necessary that, the current consumed from the supply at continuous service of the furnace, would not exceed 8.5 Amps. At this, the current consumed by the furnace will be in the order of 7.5 Amps. Cut in an ammeter with scale up to 10 Amperes to check the current consumed by the furnace;

f) Temperature rise is defined by the speed of heating of the furnace working room, i.e., by the power incoming to the heater.

Best control conditions are ensured by proper selection of the power supplied to the heater, which may be attained with the help of the type ЛАТР-1 autotransformer.

It is defined experimentally that the temperature of 1200°C is maintained stable when the autotransformer handle is set at the position marked 175± 5 Volts.

With ageing of the heater in the course of a long-lasting continuous operation of the furnace, the position of the autotransformer handle for the respective rated temperature may become altered.

7. STORAGE OF FURNACE

The furnace should be stored in dry premises. The ambient air should bear no harmful admixtures resulting in corrosion.

8. DELIVERY VOLUME

a) One Model TT-3 Crucible Type Electric Furnace Set including Type ЛАТР-1 autotransformer and Step-Down Transformer mounted on the Furnace Stand 1 unit.

b) Technical documents comprising:

Certificate of Works Control Department	1 copy
Operation and maintenance Instructions	1 copy

9. SPARE PARTS

a)	Heater assembly including alundum bushing	1 set
b)	Ceramic cushion support	1 piece
c)	Ceramic guide	1 piece
d)	Ceramic socket	1 piece
e)	Crucible support (alundum)	1 piece

10. GUARANTEE

The Works guarantees normal operation of the furnace for 500 hours after being put into service, provided the rules of the present Instructions are strictly observed and the furnace has been kept in storage, prior to its use, for no more than 4 months under conditions as stipulated in clause 7 of these Instructions. If the storage time has exceeded 4 months, the guarantee term for a trouble-free furnace operation is cut down accordingly.

"PLATINOPRIBOR" STATE WORKS.

LIST OF SPARE PARTS

FOR ARTICL TYPE TI-3

/ INSTEAD OF PART 9/

No	Spare parts	Index of spare parts	Unit	Quantity of spare parts necessary for two years work
1	2	3	4	5
1.	Block	1620106	pcs.	2
2.	Block	1620107	-"-	2
3.	Substitution	1620108	-"-	2
4.	Ceramic box	1620109	-"-	2
5.	Guide	1620110	-"-	2
6.	Bush	1620111	-"-	2
7.	Plug	1620112	-"-	1
8.	Substitution	1620113	-"-	1
9.	Lower packing	1620114	-"-	3
10.	Upper packing	1620115	-"-	2
11.	Ceramic box	1620116	-"-	2
12.	Heater ЭЧ-626			
	Ø 5,4	1620117	kg.	1.476

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